

d. Remarks

Amendments

The amendment to the specification is supported by original claim 14.

5 Amended claim 8 and new claims 16 – 18 are supported by previous claim 8 and originally filed claim 1. Amended claim 8 and new claims 16 – 18 are also supported in priority Provisional Patent Application 60/275,067 in claims 1 and 8 and at page 2, lines 23 – 24, and page 3, lines 8 – 9, 17 – 23.

Amended claim 14 is supported by original claims 14 and 8.

Rejections under 35 U.S.C. §§ 102, 103

10 At page 2, the Office Action rejects claims 8 – 11 and 13 – 15 as anticipated by “Superconducting thin films of MgB₂ on (001)-Si by pulsed laser deposition” cond-mat/0103198, published online at xxx.lanl.gov, March 8, 2001 (Herein “Brinkman”).

At page 3, the Office Action rejects claims 12 as obvious over a combination of Brinkman with U.S. Patent 4,975,417 (Herein “Koura”).

15 **Invention Prior to Effective Date of Brinkman under 37 C.F.R. § 1.131**

Herein, Applicants submit a Declaration under 37 C.F.R. § 1.131 and supporting Exhibits 1 – 4 to show a date of invention prior to the March 8, 2001 publication date of Brinkman. As discussed below, the Declaration and Exhibits 1 – 4 show both conception of the process of current claim 8 prior to said publication date and due diligence coupled 20 to said conception. For these reasons, claim 8 is entitled to a date of invention prior to the date of Brinkman. The rejections of claim 8 and of claims 9 – 18, which depend on claim 8, should be withdrawn.

With respect to the Declaration, this document satisfies the formal requirements of 37 CFR 1.131 (a). In particular, the Declaration states that “We are both inventors on, 25 at least, some of pending claims 8 – 15....”, i.e., pending at execution of the Declaration. See Declaration, par. 3. Thus, Dr. Cheong and Mr. Hur are both inventors on the subject matter of current claims 8 – 18.

With respect to the Declaration and Exhibits 1 – 4, these documents satisfy the requirements of 37 CFR 1.131 (b). As discussed below, the Declaration and Exhibits 1- 4 have a character and weight sufficient to establish: (A) conception by the inventors prior 30 to the publication date of Brinkman, and (B) coupled with conception, due diligence from

prior to said publication date up to the filing of provisional patent application 60/275,067, which provides priority for current claim 8.

A) Prior Conception

With respect to current claim 8, Dr. Cheong and Mr. Hur conceived processes for growing MgB₂ layers on surfaces of substrates prior to March 2001. See Declaration, par. 4. In the Declaration, the inventors further state that prior to March 2001 their ideas for growing MgB₂ layers included a process with the steps:

- 5 a) providing a solid pellet of MgB₂;
- b) ejecting MgB₂ from the pellet by directing laser light thereon; and
- 10 c) growing a MgB₂ layer on a substrate's surface from the ejected MgB₂.

See Declaration, par. 6.

The steps of the above process describe an embodiment with each feature of current claims 8. Furthermore, the notebook page of attached Exhibit 1 corroborates the conception of each of above steps (a) – (c) prior to March 2001. See Declaration, par. 6.

15 Also, Dr. Cheong prepared the notebook page of Exhibit 1 prior to March 2001. See Declaration, par. 5. These facts show that the inventors conceived of the processes of current claim 8 prior to the March 8, 2001 publication date of Brinkman.

B) Due Diligence to Constructive Reduction to Practice

The Declaration and Exhibits 2 – 4 establish due diligence from a date prior to the 20 publication of Brinkman up to filing of provisional patent application No. 60/275,067.

The due diligence activity includes both acts of Mr. Hur towards actual reduction to practice and acts of Dr. Cheong and Attorney McCabe towards constructive reduction to practice, i.e., filing.

With respect to the due diligence starting before the publication of Brinkman, the 25 Declaration and Exhibits 2 – 3 show the following facts:

1. Mr. Hur started experiments whose goal was obtaining a solid pellet of MgB₂ for use in practicing the processes of paragraph 6 of the Declaration prior to March 2001. See Declaration, par. 13.
2. Mr. Hur's experiments included preparing powder sample mixtures and sintering the mixtures to make solid MgB₂ objects. See Declaration, par. 13.

3. The Log Notebook entries of Exhibits 2 – 3 describe the experiments of
above pars. 1 and 2. See Declaration, pars. 13 – 14. The entries are dated prior to
March 2001 and list compositions and conditions used to prepare sample mixtures
NH93 and NH94 and to sinter the NH93 sample mixture into a MgB₂ object, i.e.,
sample BB145. See Declaration, par. 14. These Log Notebook entries were
5 prepared substantially contemporaneously by Mr. Hur. See Declaration, par. 14.

The “process” of Paragraph 6 of the Declaration is an embodiment of current claim 8.
See Declaration, par. 6 and claim 8. For that reason, Mr. Hur’s experiments of above
pars. 1 – 2, which had the goal of obtaining a pellet to practice said “process”, were
10 directed towards actual reduction to practice of claim 8 and were thus, due diligence.
The facts of above par. 3 and Exhibits 2 – 3 corroborate that Mr. Hur’s experiments
started prior to the March 8, 2001. Thus, the inventors’ due diligence started prior to the
publication date of Brinkman.

With respect to the due diligence continuing up to filing, the Declaration, Exhibit
15 5, and other sources show the following facts:

4. Mr. Hur continued into March of 2001 the experiments whose goal were
the obtainment of a solid MgB₂ pellet to use in practicing the process of paragraph
6 of the Declaration. See Declaration, par. 15.
5. The Machine Log Book entry of Exhibit 5 describes one continuing
20 experiment of above par. 4. See Declaration, par 15. The date of that continuing
experiment was March 7, 2001. See Declaration, par 15. Mr. Hur prepared this
Machine Log Book entry and recorded the date of that experiment substantially
contemporaneously with the experiment. See Declaration, par 15.
6. Between March 8th and March 12th, 2001, Dr. Cheong met with Attorney
McCabe and aided him to prepare a patent application. See Declaration, par. 12.
25 A provisional patent application, i.e., No. 60/275,067, was filed March 12, 2001.
7. Constructive reduction to practice occurred at the filing of the provisional
patent application, because the provisional application supports current claim 8.
See Provisional Application, claims 1 and 8; page 2, lines 23 – 24; page 3, lines 8
30 – 9, 17 – 23.

8. The filing of the provisional patent application was within five days of Mr. Hur's experiment of above pars. 4 – 5. Two of these five days were not normal workdays, i.e., March 10th and 11th were on a weekend. See a calendar for 2001.

Both the acts of Mr. Hur in above pars. 1 – 5 and the acts of Dr. Cheong and Attorney McCabe in above par. 6 – 8 qualify as due diligence. The facts of above pars. 1 – 5 show that the experimental activities of Mr. Hur were directed towards actual reduction to practice and were substantially continuous up to and on March 7, 2001. The Lab Book entry of above par. 5 corroborates Mr. Hur's experiments on Mar. 7th. Also, there was no break in due diligence between March 7, 2001 and March 12, 2001. Instead, after March 7th, 2001, Dr. Cheong and Mr. McCabe performed activities that were directed towards constructive reduction to practice, i.e., preparing and filing the priority provisional patent application. The shortness of the period between March 7th and 12th, i.e., 5 days, the fact that activities directed towards filing did occur during this short period, and the fact that the period included 2 weekend days evidences that no significant break occurred in the inventors' due diligence. The inventors' due diligence was substantially continuous up to filing of the priority provisional patent application.

From the above facts, the inventors have met the due diligence requirements to prove a date of invention for claim 8 that is prior to the effective date of Brinkman.

For the above reasons, Applicants respectfully request allowance of current claim 8 and also request allowance of current claims 9 – 18, which depend on claim 8.

No fee is believed due. In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Lucent Technologies Deposit Account No. 12-2325** to correct the error.

Respectfully,



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